

PATENT

Application No. 10/653,032
Attorney Docket No. 067407-5116-US

In the Drawings:

Please replace Sheets 1 – 17 with accompanying Replacement Sheets 1-16.

Reference numerals have been added to Fig. 8a.

The attached Replacement Sheets 15 and 16 of drawings include new FIGS. 16A – 16D.

REMARKS

Reconsideration of this Application is respectfully requested. Upon entry of the foregoing amendments, Claims 1-10, 12-26 and 28 are pending in the application, with Claims 1 and 12 being the independent claims. Claims 11 and 27 have been previously canceled without prejudice or disclaimer. Support for the subject matter of the amended claims is contained in the application as originally filed. For example, support for the new drawings and the amendment to specification may be found on pages 4 and 34-37 of the application as originally filed and in FIG. 1 and FIGS. 1A-1C as originally filed. Because the foregoing changes introduce no new matter, their entry is respectfully requested.

Based on the above Amendment and the following Remarks, Applicant respectfully requests that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Objections to the Drawings

The Examiner made objections to the drawings on the basis that the drawings must show every feature of the invention specified in the claims. In an effort to expedite prosecution, original Figure 1 and Figures 1A-1C were deleted in response to the Examiner's prior objections. The present amendment reinstates the subject matter of the original drawings in new FIGS. 16A-16D, which figures include reference numerals for the Examiner's reference. The submission of the new figures is believed to overcome the Examiner's objections.

Specification

The specification has been amended to include reference numerals corresponding with those of new FIGS. 16A-16D. The reference numerals merely identify various discussed in the application as originally filed. *See, e.g.,* pages 4 and 34-37 of the application as originally filed. *See also* FIG. 1 and FIGS. 1A-1C as originally filed.

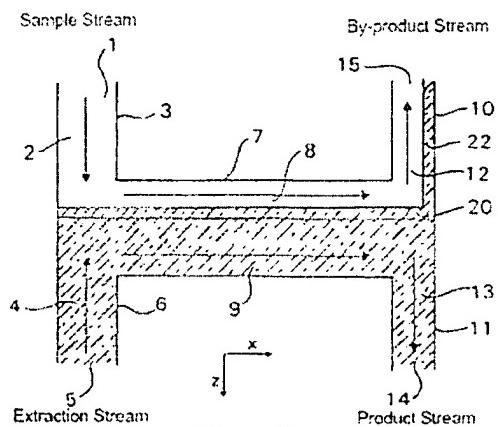
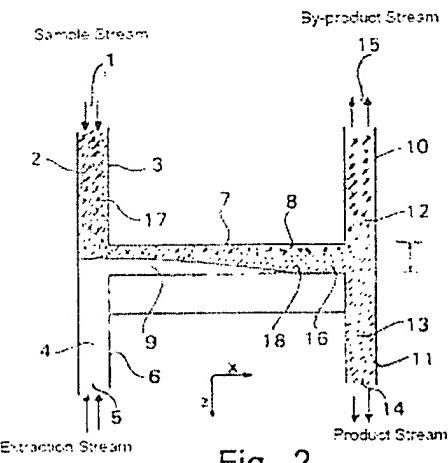
Rejections under 35 U.S.C. § 112

The Examiner has rejected Claims 12-26 and 28 under 35 U.S.C. §112, second paragraph. Applicants respectfully submit that the rejection of these claims are overcome by the accompanying amendment thereto.

Rejections under 35 U.S.C. § 102 and 103

The Examiner has rejected Claims 1-10, 12-26 and 28 under 35 U.S.C. § 102 and 103 as being anticipated by, or unpatentable over U.S. Patent No. 5,971,158 to Yager *et al.* ("Yager") alone or in combination with U.S. Patent No. 4,751,189 to Rocklin ("Rocklin") or U.S. Patent No. 4,510,058 to Cais *et al.* ("Cais"). Yager, Rocklin, and Cais taken individually or combined, fail to teach or suggest the method and apparatus of the present invention set forth in independent Claims 1 and 12.

Yager discloses diffusion of the analyte particles from one stream into another for detection. In particular, Yager discloses diffusion of *analyte particles from the sample stream 1 to the reagent stream (i.e., extraction stream 5) for detection (i.e., in product stream 14)*. See, e.g., annotated FIGS. 2 and 3 below. In particular, Yager discloses the diffusion of analyte particles from sample stream 1 to the extraction stream. *See id.*



In contrast, the present invention call for the removal of a matrix ion species *from an analyte ion species in the sample stream*. For example, the present claims recite the removal of a matrix ion species (e.g., HCl) from the sample stream. See, e.g., annotated Figure 8B below.

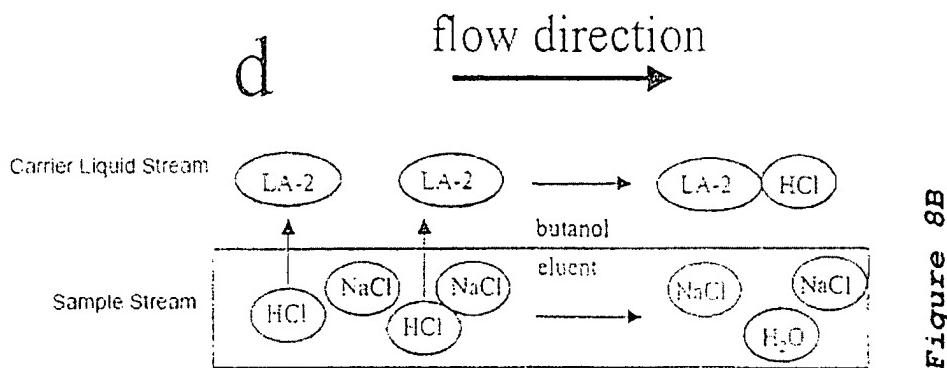


Figure 8B

As such, the analyte (c.g., NaCl) remains in the sample stream, much in contrast to Yager's teachings noted above.

The objective of Yager is to remove *analyte from the sample stream* into the carrier stream. The purpose of removing the analyte particles is to isolate them from the surrounding contaminant materials in the sample stream by transporting sample into the carrier stream, for example, transporting sample into extraction stream 4 to a form product stream 13 for detection. See, e.g., FIGS. 2 and 3 above. One such application disclosed by Yager is for detecting urea by transporting the urea from blood into the carrier stream (i.e., product stream) and detecting the carrier stream. See column 18, lines 53-57.

Thus, Yager teaches away from the present invention. The entire objective of Yager is to transport the analyte from the sample stream into the carrier stream for detection. Once removed from the sample stream, Yager's analyte is free of the remaining large particle contaminants in the sample stream; which would interfere with such detection of the analyte ion species in the carrier stream. If Yager intended to detect the analytes in the sample stream, there would be no reason to use the Yager liquid-liquid interface system to isolate the analyte ion from other components in the sample stream by transfer to the carrier stream. Thus, Yager teaches away

from the methods and apparatus of the presently claimed invention in which the sample stream itself is prepared for analysis.

Moreover, Yager fails to teach or suggest a detector for the at least one analyte ion species *in the sample stream* or a fluid conduit providing fluid communication between the sample treatment outlet and the detector *with the sample stream*. See claim 2. Yager also fails to teach or suggest detection of the analyte ion species *in the sample stream*. See claim 14. As noted above, Yager teaches away from these features.

Rocklin discloses a suppressor with a sample liquid stream on one side of an ion exchange membrane and a carrier liquid stream on the other side. As the Examiner indicates, Rocklin does not disclose a matrix ion species capture material in the carrier stream or any reason for the inclusion of such material. As such, Rocklin fails to account for the deficiencies of Yager noted above. Moreover, the claimed invention provides a number of advantages over such membrane devices including the elimination of sealing and fabrication issues. (See the specification, page 2, lines 7-11.) There is no suggestion or teaching or motivation in Rocklin to eliminate the membrane in a matrix ion removal method or apparatus.

The Examiner concedes that Yager does not disclose immiscible sample stream and carrier liquid stream, but considers it obvious to modify Yager in light of Cais to provide such immiscible streams. The advantages of using immiscible sample and carrier liquid streams are discussed in detail on at pages 10-12 of the application as originally filed. While Applicants do not agree with the Examiner's position, assuming *arguendo* such a combination could be made, such combination would still fail to teach or suggest the removal of contaminates from the sample in the sample stream.

For at least these reasons, Applicants respectfully submit that Yager, Rocklin and Cais, taken individually or combined, do not anticipate or render obvious independent Claims 1 and 12. Applicants submit that claims 2-10, 13-26 and 28, which depend from either Claim 1 or Claim 12, are allowable over the cited art for at least the same reasons noted above.

CONCLUSION

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided below.

Prompt and favorable consideration of this Amendment and Response is respectfully requested.

Respectfully submitted,

Date: 7/9/08

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Attachment: Drawings Replacement Sheets 1/16 through 16/16.